

**REMARKS**

Claims 1, 12, 20, 22-30, 32, 35 and 37-39 are amended. Claims 1-39 are currently pending in the application.

Per the Examiner's request, Applicants have made corrections to the drawings by adding Figure 1A, and renumbering original Figure 1 as Figure 1B. The specification has also been amended with appropriate reference numbers, consistent with Figures 1A and 1B. Figure 1A and the claim amendments do not present new matter since IP building blocks having different protocols and generating an interface for communications between different IP block protocols is described throughout the specification. See, e.g., p. 1, lines 25-27; p. 6, lines 3-17; p. 10, line 16 - page 11, line 5; p. 12, lines 13-19; p. 21, lines 11-21.

Reconsideration of the application, as amended, is respectfully requested.

**I. Claims 1-9, 11-19, 21-24, 26-28, 30-32, 34, 35, 37 and 38 Are Patentable Over Akella In View of Netravali**

Independent claims 1, 12 and 22 and respective dependent claims 2-9, 11, 13-19 and 21-24, 26-28, 30-32, 34, 35, 37 and 38 are rejected under 35 U.S.C. § 103 as being unpatentable over Akella *et al.*'s Synthesizing Converters Between Finite State Protocols ("Akella") in view of U.S. Patent No. 5,680,522 to Netravali *et al.* ("Netravali").

Under 35 U.S.C. §103(a), to establish a *prima facie* case of obviousness of a claim, all of the claim limitations must be taught or suggested, and all words in a claim must be considered in judging the patentability of that claim. MPEP §§2143; 2143.03, citing *In re Royka*, 490 F.2d 981 (CCPA 1974). In addition to this "all elements" rule, there must be some suggestion or motivation to combine references, and a reasonable expectation of success. MPEP §§2143.01-2143.03, citing *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). The mere fact that a reference can be modified does not render the resultant modification obvious unless the reference also suggests the desirability of the modification. MPEP § 2143.01, citing *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990.) Further, if a proposed modification would render the prior art being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP §2143.01, citing *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984.) It is also improper to modify or combine references where the references teach away from the

modification or combination. MPEP §2146, citing *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983.) See also *In re Haruan*, 249 F.3d 1327 (Fed. Cir. 2001) (“A prima facie case of obviousness can be rebutted if the applicant . . . can show ‘that the art in any material respect taught away’ from the claimed invention.”)

Applicants respectfully submit that Akella and Netravali cannot support the rejection under § 103(a) and respectfully submit the above amendments and the following remarks to expedite prosecution of the application to allowance.

A. Akella Does Not Disclose Or Suggest Exchanging Data Messages Between First And Second Intellectual Property Building Blocks Having Different Protocols

All of independent claims 1, 12 and 22 are amended to recite Intellectual Property or “IP” building blocks (otherwise known as IP cores) and different signaling protocols of Intellectual Property building blocks. Applicants provide Attachment, which describes an “IP core” as is understood in the art. Attachment A explains that an IP block or core is a block of logic or data that is used in making a field programmable gate array (FPGA) or application-specific integrated circuit (ASIC). IP blocks or cores allow repeated use of previously designed components for use in Electronic Design Automation (EDA). Thus, IP blocks are blocks that are used in designing and manufacturing a circuit.

Akella does not disclose or suggest a method for exchanging data messages between a “first Intellectual Property building block” having a first signaling protocol for exchanging messages and a “second Intellectual Property building block” having a second signaling protocol for exchanging messages as recited in independent claim 1. Akella also fails to disclose or suggest the related “first “Intellectual Property building block,” “second Intellectual Property building block,” first signaling protocol and second signaling protocol limitations of independent claims 12 and 22.

Page 11, para. 8 of the Office action relies upon “bus adapters” that are mentioned in Akella to reject the claims. The Office action asserts that these bus adapters convert protocols of “circuit building blocks.” Akella and the Office action assertions, however, are no longer relevant in view of amended independent claims 1, 12 and 22, all of which recite “Intellectual Property building block” limitations.

First, Akella is silent as to Intellectual Property building blocks. The cited reference does not otherwise suggest Intellectual Property building blocks having different protocols. Second, it is well known in the art that “bus adapter,” “gateway” and “bridge” components that are mentioned in Akella are not Intellectual Property building blocks.

Akella refers to a “bus adapter” and related “gateway” and bridge components in the bottom of column 1 and the top of column 2:

“No general theory for synthesizing protocol conversions exists, through there have been several successful specific protocol conversions. In such cases, the inter-process communication devices (IPCDs) such as **bus adapters, gateways, and bridges** convert one communication protocol to another so that transactions begun on one bus can end on another with minimum changes required in the hardware and software modules of the two buses. In this paper, we propose a general approach for synthesizing IPCDs by adapting Labelled Transition Systems (LTS) [7]...” (Akella, p. 410, second paragraph, columns 1 and 2) (emphasis added)

Applicants provide Attachments B-D, which are summaries of a bus adapter, a gateway and a bridge, as discussed in Akella and identified in page 11 of the Office action. Attachments B-D demonstrate the substantial differences between bus adapters (Attachment B) and related gateway (Attachment C) and bridge (Attachment D) compared to Intellectual Property building blocks (Attachment A).

Attachment B explains that a “host bus adapter” is used to provide connectivity between a server and a storage device. Consistent with this description, Attachment C explains that a “gateway” is a network point that acts as an entrance to another network. On the Internet, a node or stopping point can be either a gateway node or a host (end-point) node. Both the computers of Internet users and the computers that serve pages to users are host nodes. Attachment D also describes a “bridge” in a “networking” context and explains that a bridge is a product that connects a local area network (LAN) to another LAN that uses the same protocol. A bridge examines each message on a LAN, “passing” those known to be within the same LAN, and forwarding those known to be on the other interconnected LAN(s). Attachment D also describes a bridge in the context of bridging networks that are interconnected local area networks.

Thus, the “bus adapter” and related “gateway” and “bridge” components mentioned in Akella and cited in the Office action relate to networking protocols and communications between computers. These components are not Intellectual Property building blocks. Further, the “bus

adapter” and related “gateway” and “bridge” components are used for different purposes and function in different manners compared to Intellectual Property building blocks. These differences are well recognized in the art.

Akella, therefore, fails to disclose or suggest “Intellectual Property building blocks” as recited in claims 1, 12 and 22. The descriptions in Attachments A-D and knowledge of persons of ordinary skill in the art are consistent with this conclusion. Assertions to the contrary contradict the term Intellectual Property building blocks as used in the specification of the subject application and knowledge of persons of skilled in the art.

Netravalli does not cure the deficiencies of Akella since Netravalli, like Akella, also describes a “gateway” for communications between computers or computer networks. (See, e.g., Netravali, Figure 1, col. 1, lines 6-7; col. 29-32; claim 1.) This is further demonstrated by Netravali describing network communication protocols, such as SNA, DECNET and OSI, “differences in network layer functionalities, bit rates, buffering, interfaces and hand-off procedures” and “automatic generation of systems to overcome the architectural mismatches is not foreseeable in the near future.” (Netravali, col. 1, lines 13-30-36) (emphasis added).

Thus, Netravali, like Akella, does not disclose or suggest Intellectual Property building blocks used in EDA and having different signaling protocols, or synthesizing an interface between Intellectual Property building blocks having different protocols. Correspondingly, even if Akella and Netravali were combined, the combination would neither disclose nor suggest each and every limitation of Applicants’ claims 1, 12 and 20.

B. Akella Does Not Disclose Or Suggest Protocols of Intellectual Property Building Blocks Being Represented Using Regular Expressions and Derivatives Thereof

In addition to the substantial differences discussed above, Akella does not disclose or suggest “receiving a first representation, representing the first signaling protocol of said first Intellectual Property block, said first representation using regular expressions” and “receiving a second representation, representing the second signaling protocol of said second Intellectual Property block, said second representation using regular expressions” as recited in claim 1 and the related “regular expressions” limitations of claim 12.

Page 3 of the Office action generally asserts that Akella discloses receiving first and second representations using regular expressions. However, the Office action does not identify any particular section of Akella that actually discloses use of regular expressions. Further, the Office action does not point to any specific section of Akella that actually discloses grammar-based regular expressions or derivatives of regular expressions, as recited in dependent claims 4, 11 and 15.

The Office action appears to refer to page 411, Section 2 of Akella so support the rejection. The cited section, however, only generally describes a finite state machine having an input side. It is not proper to guess or assume that Akella discloses “regular expressions” and “derivatives” of regular expressions as recited in Applicants’ claims since “the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.” MPEP § 2112 (emphasis added), citing *In re Rijckaert*, 9 F.3d 1531, 1524 (Fed. Cir. 1993) (reversed rejection based on inherency assertion). Rather, “extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference...’” MPEP § 2112 (emphasis added), citing *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *Id.* Further, “in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” MPEP § 2112, citing *Ex parte Levy*, 17 USPQ2d 1461, 1644 (Bd. Pat. App. & Inter. 1990).

Applicants respectfully submit that the Office action assertion cannot support a rejection under §103(a), particularly considering that Akella does not disclose or suggest regular expressions and derivatives thereof, and there is no indication in Akella that such expressions and derivatives are “necessarily present,” particularly in the context of the amended independent claims 1, 12 and 22, all of which recite “Intellectual Property building block” limitations.

C. Akella Does Not Disclose Or Suggest Protocols of Intellectual Property Building Blocks Having Different Sequences

Akella and Netravali do not disclose or suggest receiving a first representation, representing the first signaling protocol of said first Intellectual Property block “having a first sequence” and receiving a second representation, representing the second signaling protocol of said second Intellectual Property block and having “a second sequence that is different from said first sequence” as recited in dependent claims 3 and 6 and the related limitations of dependent claims 14 and 17.

Page 5 of the Office action does not identify any particular section of Netravali that actually discloses a second sequence being different from a first sequence. Instead, the Office action relies on Netravali and generally asserts that Netravali discloses that it is known to translate data between two protocols and rectify mismatches. Netravali, however, does not disclose or suggest different sequences in the context of first and second Intellectual Property building blocks.

D. Akella and Netravali Does Not Disclose Or Suggest Intellectual Property Building Blocks Being Reusable at a Register Transfer Level

With regard to claims 27, 28 and 30, which depend from respective claims 1, 12 and 22, neither Akella nor Netravali discloses or suggests “the first and second Intellectual Property building blocks being reusable at a register transfer level” or based on flow of data between registers. Page 8 of the Office action refers to column 1 of Netravali, which discloses an Open Systems Architecture (OSI). As explained in Attachment E, OSI is a network protocol for communications between two computers, e.g., for Internet applications, consistent with the description of a “gateway” and network applications as discussed earlier. Netravali, therefore, is clearly deficient relative to claims 27, 28 and 30, particularly in the context of amended claims 1, 12 and 22, which refer to “Intellectual Property building blocks.”

E. Akella Does Not Disclose Or Suggest “Automatically” Limitations

Applicants acknowledge the Office action states that Akella does not explicitly disclose automatically synthesizing the interface...” (8/9/05 Office Action, p. 6).

F. Akella Does Not Disclose Or Suggest And Teaches Away From “Without Manually Entering” Limitations

Akella fails to disclose or suggest automatically synthesizing an interface between different signaling protocols of first and second Intellectual Property building blocks based on the first and second finite automaton, “without manually entering the interface behavior” as recited in independent claims 1 and 12 and “without manually entering the third representation behavior” as recited in claim 20.

Page 11 of the Office action refers to an “omission” of Akella in that Akella does not disclose the “automatically” limitation. However, Akella plainly states “The product LTS is reduced by four steps: firstly, a third LTS C which represents the desired sequence of inter-operation between the interfaces is specified, ...” (Akella, p. 411, col. 2) (emphasis added). A “desired” or “specified” sequence necessarily requires some type of manual input because without the manual input, there could be no “desired” or “specified” sequence. Further, Akella explains that “no general theory for synthesizing protocol conversions exists,” (Akella, p. 410, col. 1, paras. 1 and 2; p. 411, col. 2, para. 1). Accordingly, Akella teaches away from Applicants’ claims 1, 12 and 22, which recite “without manually entering the interface behavior.” since Akella describes a desired and specified sequence. MPEP §2146, citing *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983.) See also *In re Haruan*, 249 F.3d 1327 (Fed. Cir. 2001) (“A prima facie case of obviousness can be rebutted if the applicant . . . can show ‘that the art in any material respect taught away’ from the claimed invention.”) (emphasis added).

G. Dependent Claims 2-9, 11, 13-19 and 21 Are Patentable Over the Cited References

Dependent claims 2-9, 11, 13-19 and 21 incorporate the elements and limitations of respective independent claims 1, 12 and 20 and add novel and nonobvious limitations thereto. Each of these claims includes limitations directed to Intellectual Property building blocks. Accordingly, these dependent claims are allowable over the cited references for at least the reasons set forth above. MPEP §2143.03 (if an independent claim is non-obvious, then a claim that depends from the independent claim is also non-obvious), citing *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

With regard to blanket assertions concerning inherent disclosures of cited references, Applicants kindly acknowledge that the Office action has not identified specific sections of the references expressly disclose each and every limitation of various dependent claims. Instead, the office action relies on a general assertion that limitations of certain claims are inherently disclosed by a reference. Regarding these inherency assertions, as noted above, “the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.” MPEP § 2112 (emphasis added), citing *In re Rijckaert*, 9 F.3d 1531, 1524 (Fed. Cir. 1993) (reversed rejection based on inherency assertion). Rather, “extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference...’” MPEP§ 2112 (emphasis added), citing *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *Id.* Further, “in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” MPEP § 2112, citing *Ex parte Levy*, 17 USPQ2d 1461, 1644 (Bd. Pat. App. & Inter. 1990).

Applicants respectfully submit that the cited Akella and Netravali references cannot support the rejection in view of amended independent claims 1, 12 and 22, each of which recites limitations directed to an “Intellectual Property building block” and different protocols of Intellectual Property building blocks. The cited references, individually and in combination, fail to disclose or suggest the limitations of dependent claims 2-9, 11, 13-19 and 21 in the context of Intellectual Property building blocks. The dependent claims are not inherently disclosed by the cited references in view of the standards set forth above, particularly in the context of amended claims 1, 12 and 22.

Further, considering the “network” applications of the bus adapter, gateway and bridge components (Attachments B-D) described in Akella and/or Netravali, the cited references clearly fail to disclose or suggest claims 37 and 38, each of which recites a limitation directed to “within a computer.”



H. Dependent Claim 10, Independent Claim 20 and Dependent Claims 25, 29, 33, 36 and 39 Are Patentable Over the Cited References

Dependent claim 10, independent claim 20 and claims 25, 29, 33, 36 and 39, which depend from claim 20, are rejected under 35 U.S.C. § 103(a) as being unpatentable over Akella in view of Netravali, and further in view of Mano's Computer Science Architecture ("Mano") and Official Notice.

The deficiencies of Akella and Netravali relative to the "Intellectual Property building block," and "without manually entering the third representation behavior" limitations of independent claim 20 are discussed above. Accordingly, these arguments are not repeated.

The Mano publication and Official Notice do not cure these deficiencies. Consequently, even if Akella, Netravali and Mano were combined in view of the Official Notice, the combination would neither disclose nor suggest all of the elements and limitations of claims 10, 20, 25, 29, 33, 36 and 39, particularly in view of the "Intellectual Property building block" limitations. Thus, these claims are allowable. MPEP §§2143; 2143.03 (all of the claim limitations must be taught or suggested for a §103(a) rejection), citing *In re Royka*, 490 F.2d 981 (CCPA 1974). MPEP §2143.03 (if an independent claim is non-obvious, then a claim that depends from the independent claim is also non-obvious), citing *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

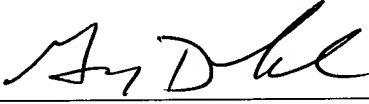
**II. Conclusion**

Based on the forgoing amendments and remarks, the Applicants respectfully submit that the application is in condition for allowance and respectfully request that a timely Notice of Allowance be issued in this case. If there are any remaining issues that can be resolved by telephone, Applicants invite the Examiner to contact the undersigned at the number indicated below.

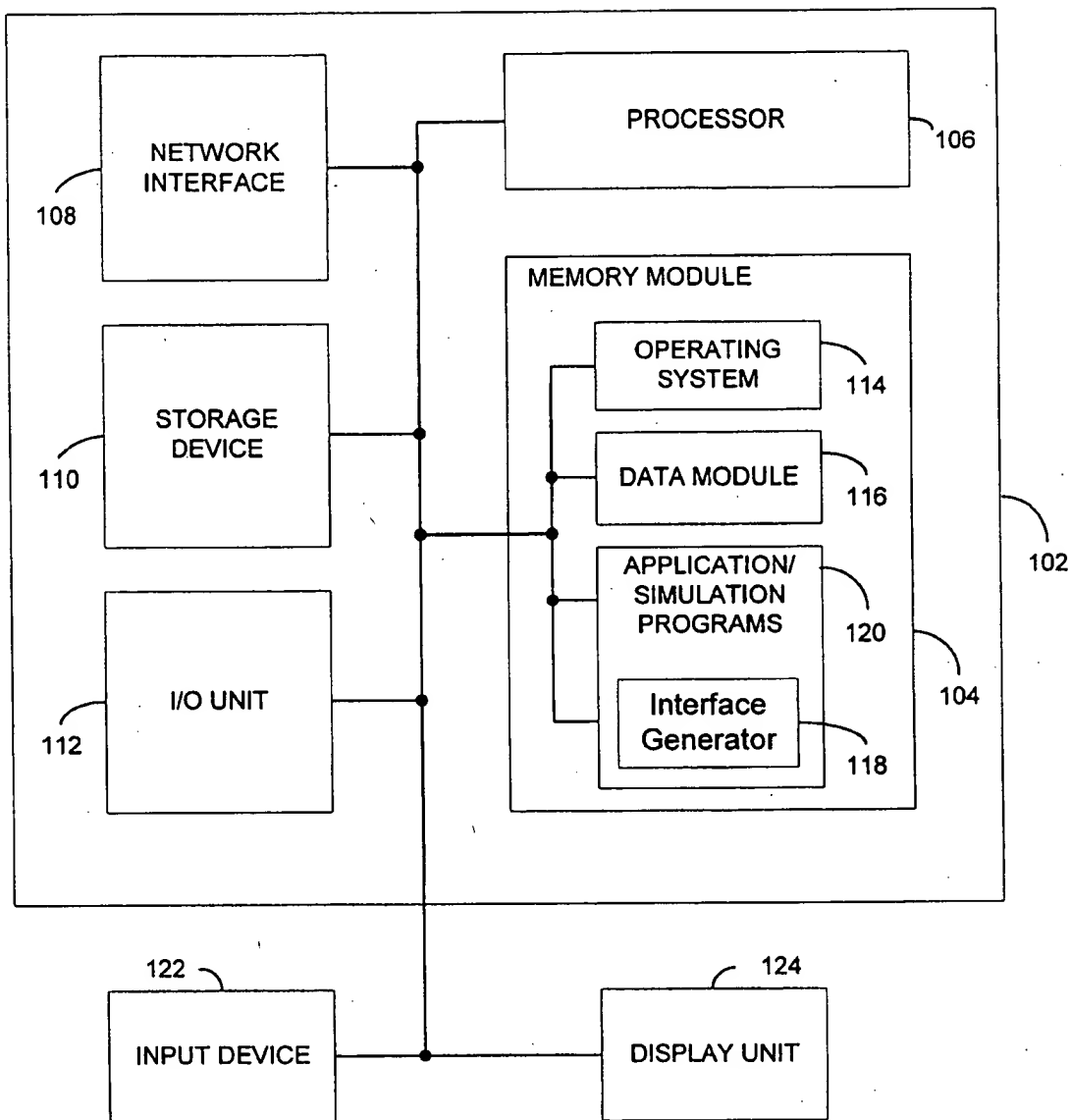
Respectfully submitted,

**BINGHAM McCUTCHEN, LLP**

Dated: January 10, 2006

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~~Figure 1~~

Figure 1B